Appl. No. 10/814,738

Amdt. Dated 14 September, 2006

Reply to Office action of: 14 June 2006

Amendment in the specification:

Please replace the title with the following rewritten title:

Title: FUEL CELL SYSTEMS FUEL CELL SYSTEMS WITH CONDUCTING LAYERS

Please replace paragraph [0022] with the following rewritten paragraph:

[0022] Interconnect 14 comprises a hollow manifold 32, which hollow manifold 32 is configured to distribute a fuel and an oxidant to the anode 2 and cathode 6 respectively (not shown in Fig. 4). The hollow manifold 32 further comprises a first sidewall 50 and a second sidewall 52 to define at least one enclosed chamber within the hollow manifold 32. The hollow manifold 32 comprises a top manifold 34 and a bottom manifold 36, which top manifold 34 and bottom manifold 36 are separated by a separator plate 30. The top manifold includes a top wall 38 and a bottom wall, which bottom wall is the separator plate 30. The bottom manifold 36 includes a top wall, which top wall is the separator plate 30 and a bottom wall 40. The top manifold 34 is in intimate contact with the cathode 6 (not shown in Fig. 4) and therefore acts as a cathode interconnect. The bottom manifold is in intimate contact with the anode 2 (not shown in Fig. 4) and therefore acts as an anode interconnect. The top manifold 34 is configured to provide a flow path 42 for the oxidant to be distributed evenly to the cathode 6, as shown in Fig.1. The bottom manifold 36 is configured to provide a flow path 44 —46— for the fuel to be distributed evenly to the anode 2, as shown in Fig.1. The fuel flow path 44 and the oxidant flow path 42 are substantially parallel, wherein the fuel and the oxidant flow parallel to each other on either side of the divider 30 in the hollow manifold 32. The Top wall 38 of the top manifold 34 comprises at least one opening 46, which opening 46 is in fluid communication with the cathode 6. The bottom wall of the bottom manifold 36 further comprises at least one opening 48, which opening 48 is in fluid communication with the anode 2. More specifically, in the exemplary embodiment as shown in Fig. 4, a plurality of openings 46 extend through the top wall 38 into the top manifold 34 and a plurality of openings 48 extend through the bottom wall 40 into the bottom manifold 36. In the exemplary embodiment, openings 46 and 48 are arranged in a mesh structure, which mesh structure is substantially rectangular. The openings 46 and 48 in the top manifold 34 and the bottom manifold 36 maximize the oxidant and fuel availability to the cathode and the anode respectively, by optimizing the contact area between the incoming fuel and oxidant and the cathode and the anode. Higher fuel availability due to the interconnect design as shown in Fig. 4 improves the fuel utilization in the fuel cell assembly 10. The openings 46 and 48 in the top wall 38 and the bottom wall 40 may be manufactured by using methods including, but not limited to machining, metal punching and laser drilling. The top wall 38 and the bottom wall 40 are in intimate contact with the conducting layers 8 as shown in Fig. 1. In some embodiments, the conducting layers 8 may be directly disposed on the top wall 38 and the bottom wall 40.

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Please replace paragraph [0026] with the following rewritten paragraph:

[0026] Fig. 8 illustrates a perspective view of yet another exemplary interconnect 14, which interconnect 14 is part of the fuel cell assembly 10 as shown in Fig.1. The interconnect 14 comprises a hollow manifold 70, which hollow manifold 70 is configured to distribute fuel to the anode 8 (not shown). The hollow manifold 70 includes a top wall 72 and a bottom wall 78. The hollow manifold 70 further comprises a pair of sidewalls 74 and 76 that connect the top and bottom walls 72 and 78, respectively. The top wall 72 of the hollow manifold 70 comprises at least one opening 66 to provide a flow communication between the fuel flowing through the hollow manifold 70 and the anode 8 (not shown) disposed on the top wall 72. More specifically, in the exemplary embodiment as shown in Fig. 8, a plurality of openings 66 extend through the top wall 72 into the hollow manifold 70. In the exemplary embodiment, openings 66 are arranged in a substantially collinear configuration, i.e., openings 66 are arranged in a plurality of rows, wherein each row includes a plurality of openings 66 arranged in a linear sequence. Additionally, in the exemplary embodiment, each opening 66 has a substantially circular cross-sectional profile. In some other embodiments, each opening —48—66 has a non-circular cross-sectional profile.